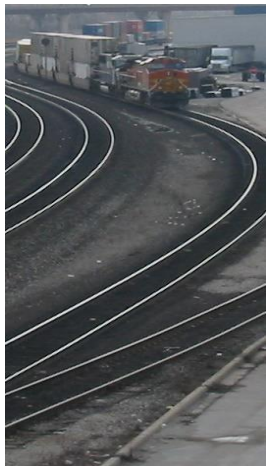
Ad Hoc Expert Meeting on Measuring Shipping Connectivity and Performance: The Need for Statistics and Data, Geneva, May 15 2017

Big Data versus Small Data: Container Port Traffic and Maritime Connectivity



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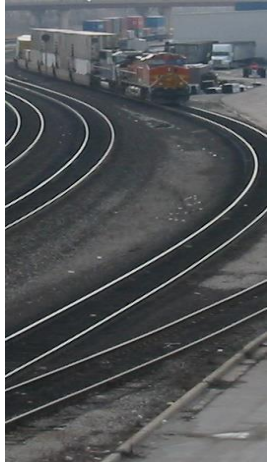
‘Big Data’ versus ‘Small Data’

- Big Data
  - Massive quantities.
  - Usually collected automatically by sensors.
  - Collected in real time.
  - Happens ‘by accident’ as a by-product of a digital footprint.
  - Ex-post usefulness.
- Small Data
  - Limited quantities.
  - Collected semi-automatically (often human input).
  - Collection delayed by reporting systems (daily, monthly, quarterly, annually).
  - Purposefully collected (regulation, reporting, decision making).
  - Ex-ante usefulness.





1. Container Port Traffic Data

Big Data is Great, but What About Small Data?

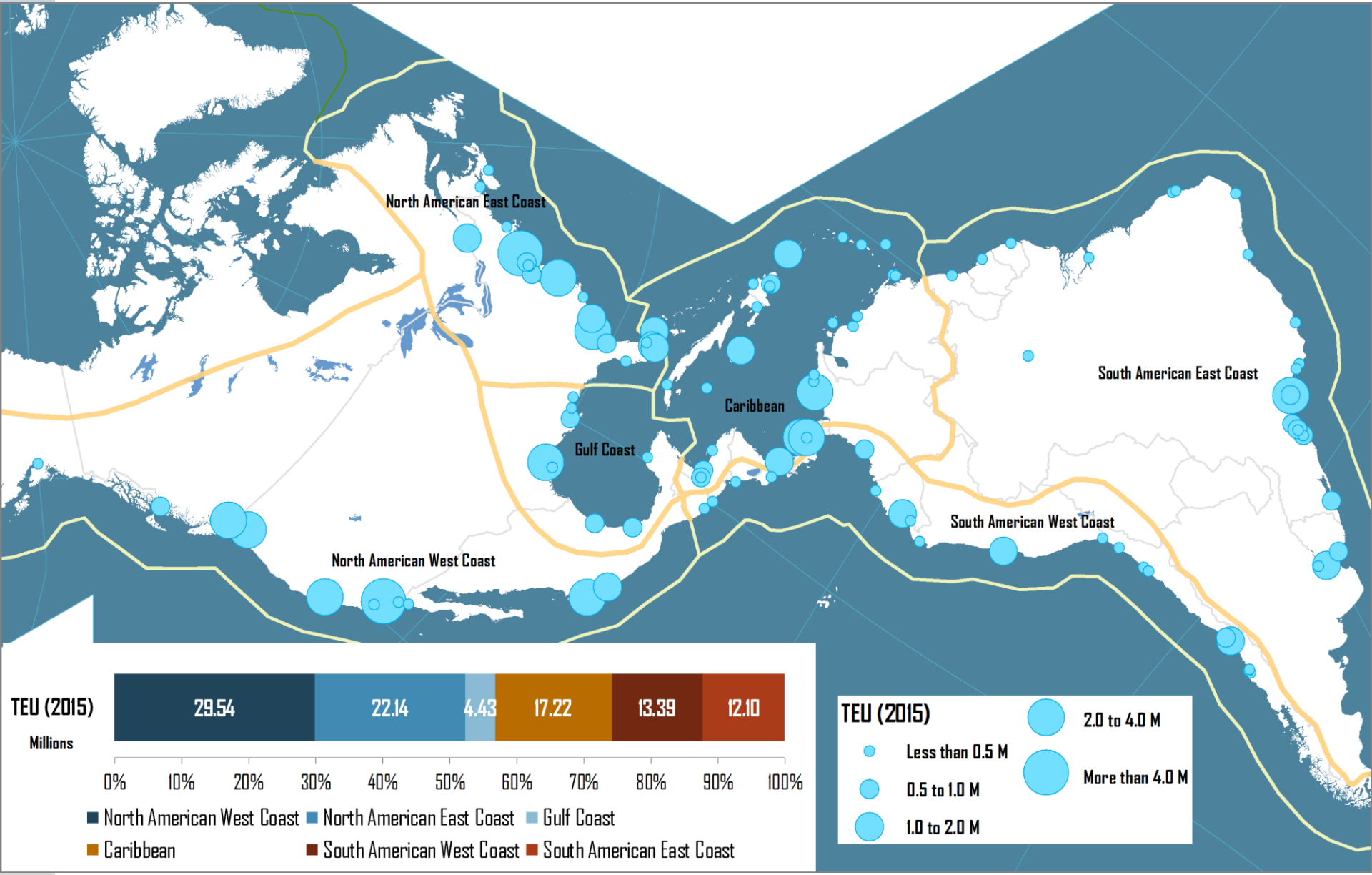
- Frustration about container port traffic data
  - One of the world's most simple and indicative data is not comprehensively available.
  - Port authority web sites are a mess:
    - Often difficult to find traffic data; often out of date.
    - Data published in a variety of inconvenient formats (GIF, PDF).
  - Wide variations in the consistency and level of detail.
  - No standards.
  - Data collection/compilation is usually a manual process.
  - Several regional trade groups collect and maintain data from their constituents:
    - AAPA, ECLAC, ESPO.
  - No international agency has 'claimed the ownership' of the data.

Global Container Ports Database

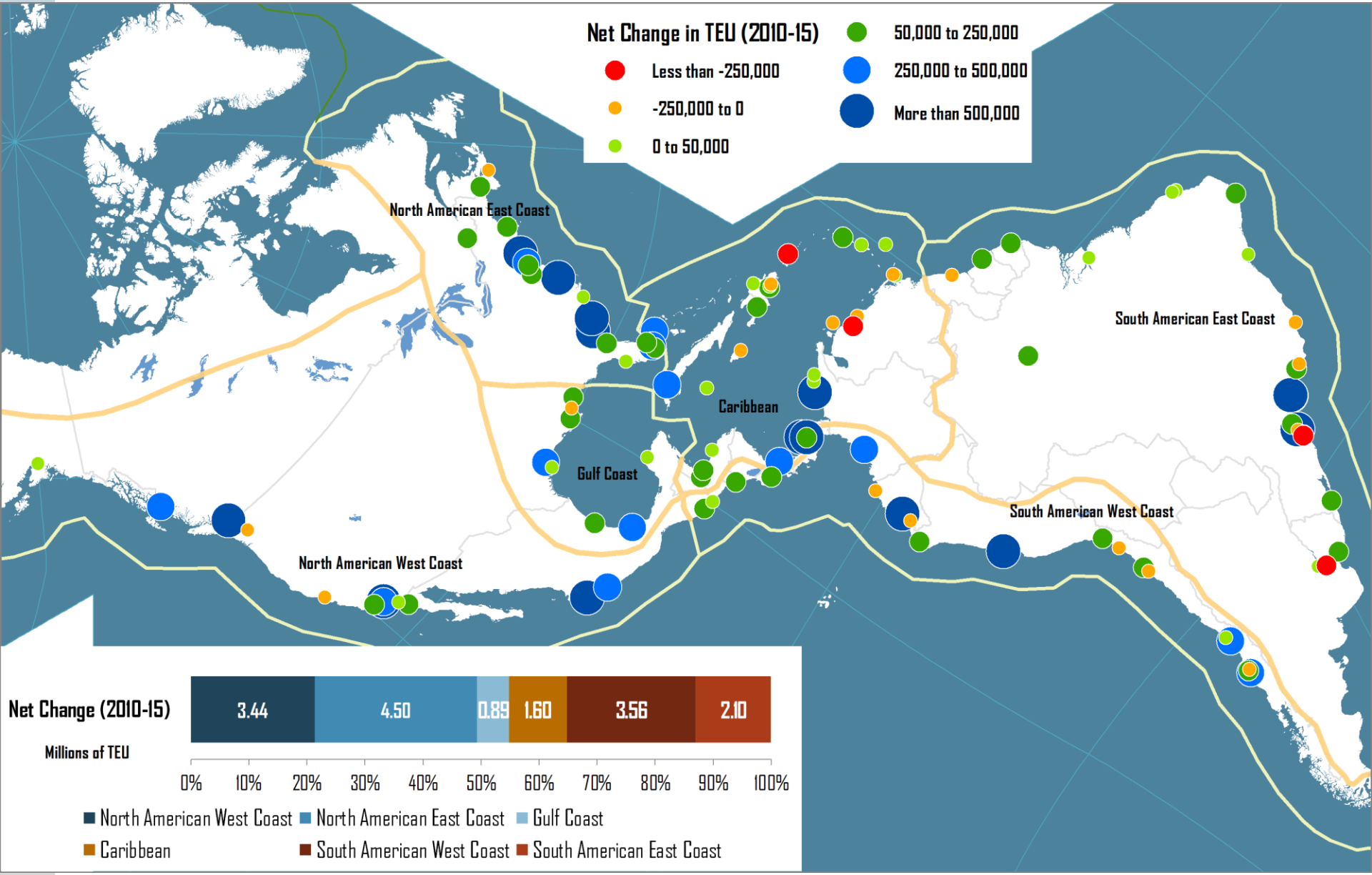
PORT	Port name
UNLOCODE	United Nations Code for Trade and Transport Locations.
STATUS	Active, Merged, Part, Inactive
CITY	The metropolitan area in which the port is located (or is mainly serving)
COUNTRY	Country
RANGE	Maritime range
LONG; LAT	Longitude and latitude
ALIAS	Alternate port name (if more than one usual name)
Port Authority	Name of the port authority
Source	Link to online data source
DEPTH_X	Max alongside depth of container terminals; MLW
CHANNEL	MLW Port Channel Depth
REEFER	Number of reefer slots at the terminal
Y_XXXX	Annual traffic in TEU for year XXXX

550 active ports totaling 645 M TEU of volume in 2015

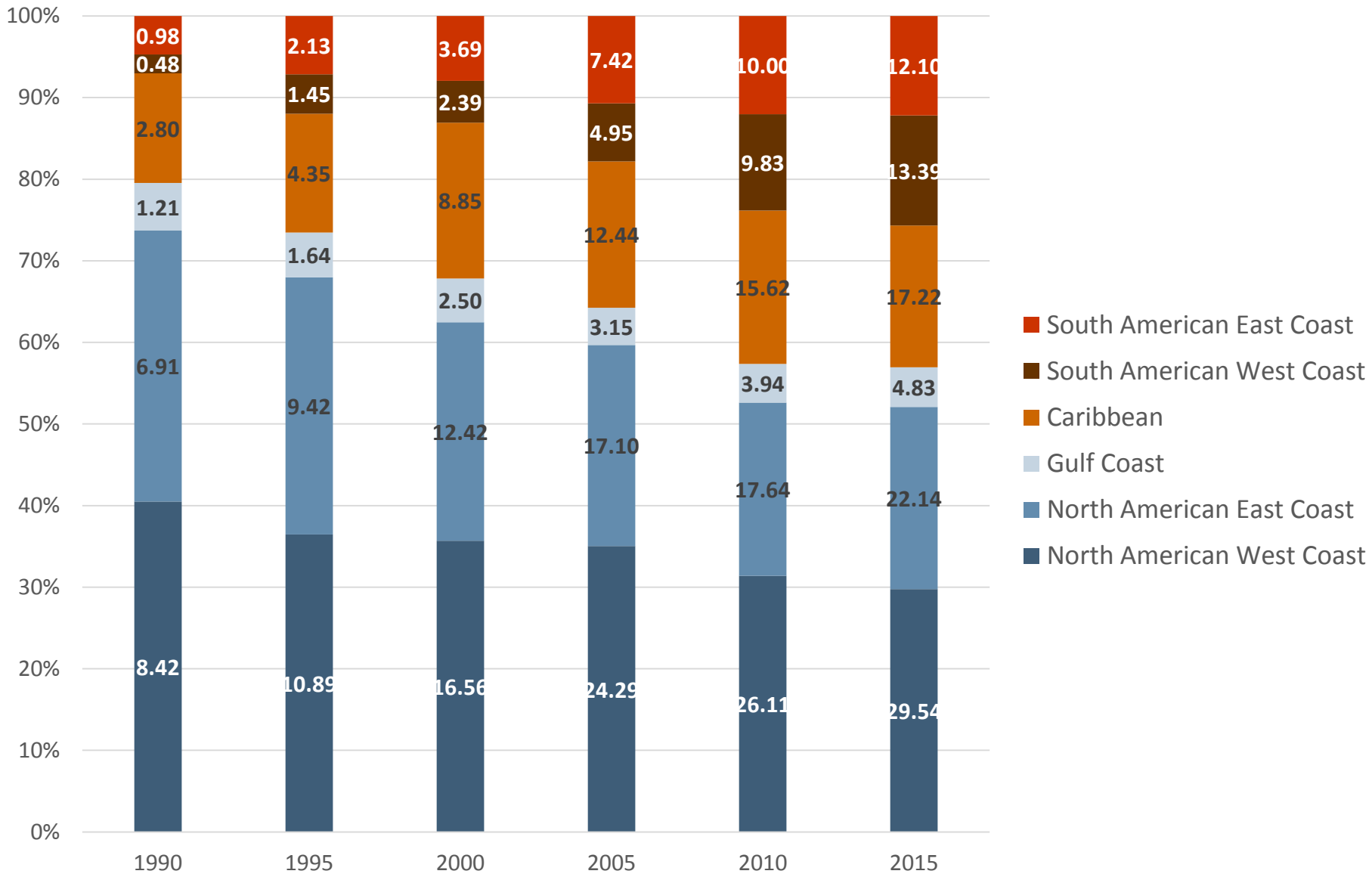
Container Ports and Main Maritime Ranges of the Americas, 2015



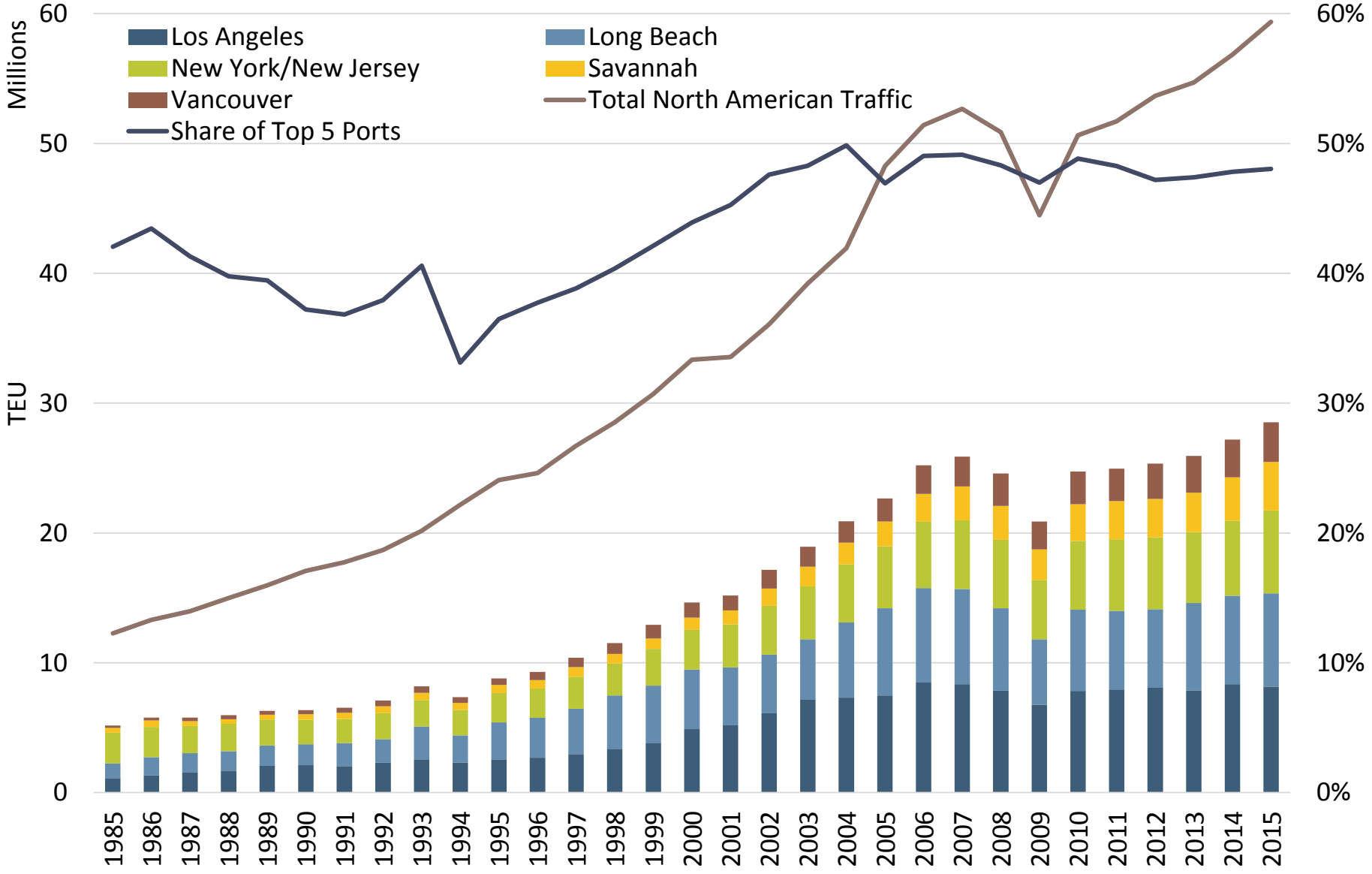
Net Container Volume Changes in the Americas, 2010 / 2015



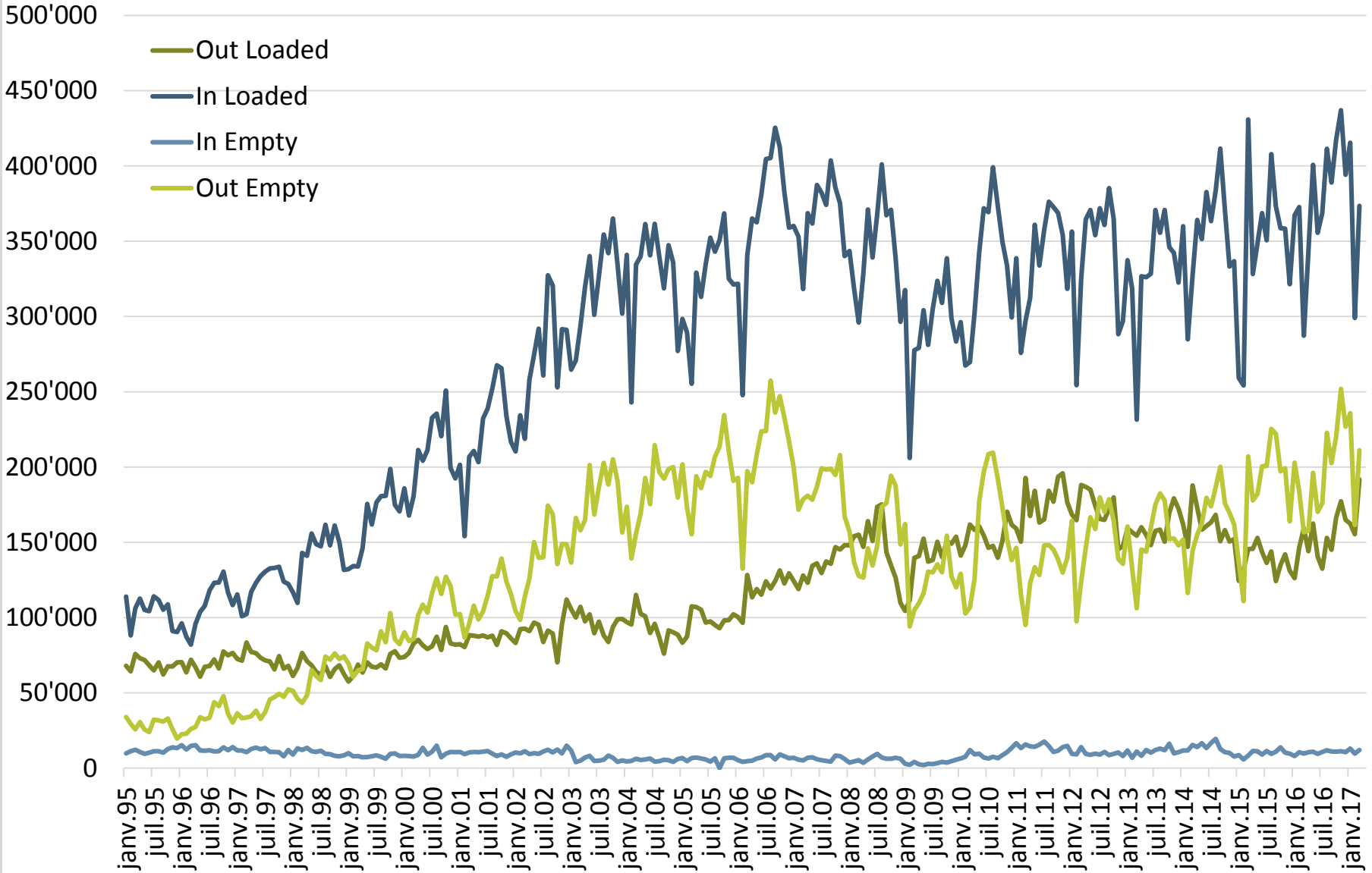
Share of the Maritime Ranges of the Americas in Total Container Volumes, 1990-2015



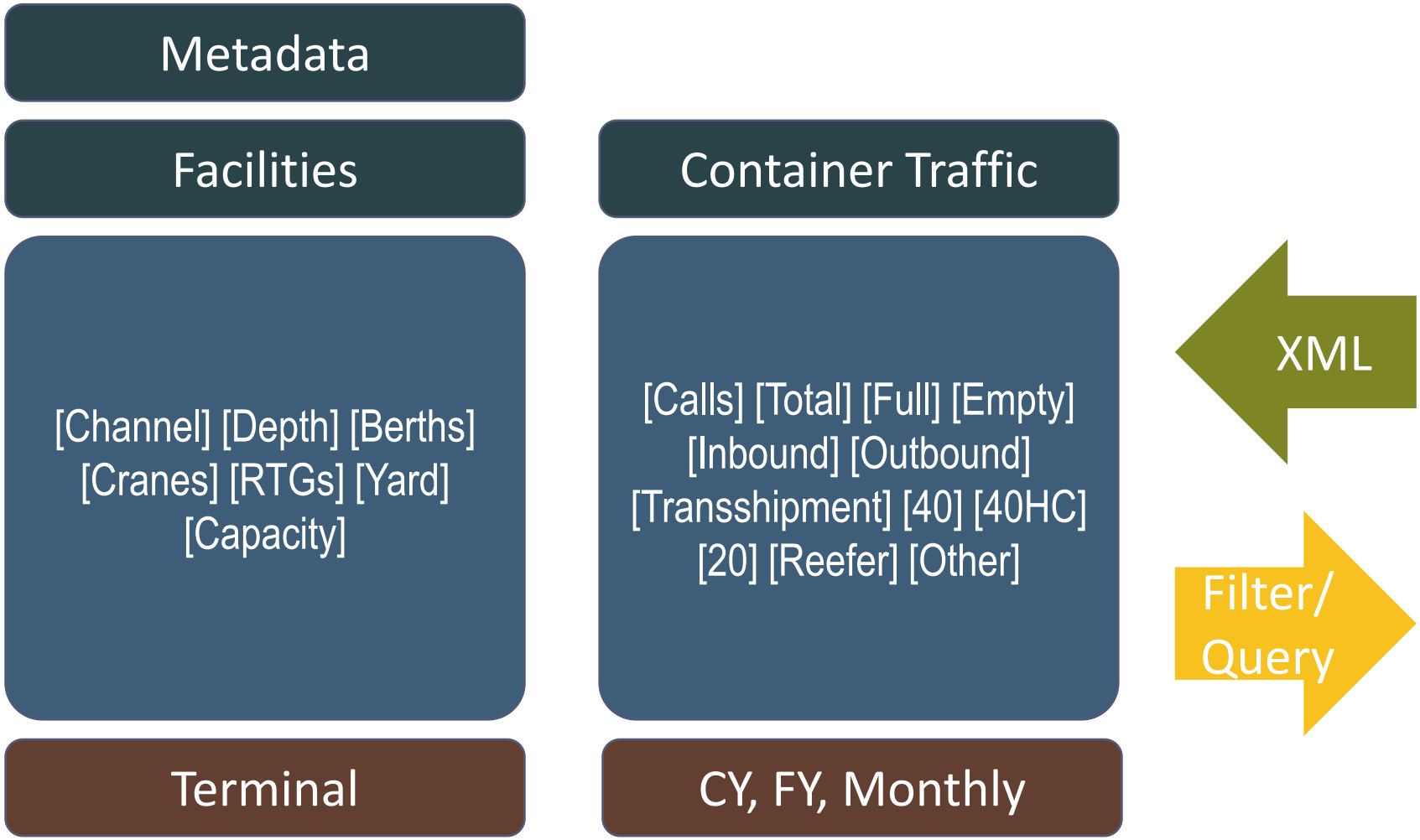
Cargo Handled by the Top 5 North American Container Ports, 1985-2015 (in TEUs)



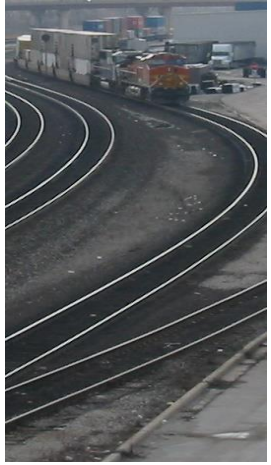
Monthly Container Traffic at the Port of Los Angeles, 1995-2017



Proposal: A Data Template for Automated Data Harvesting

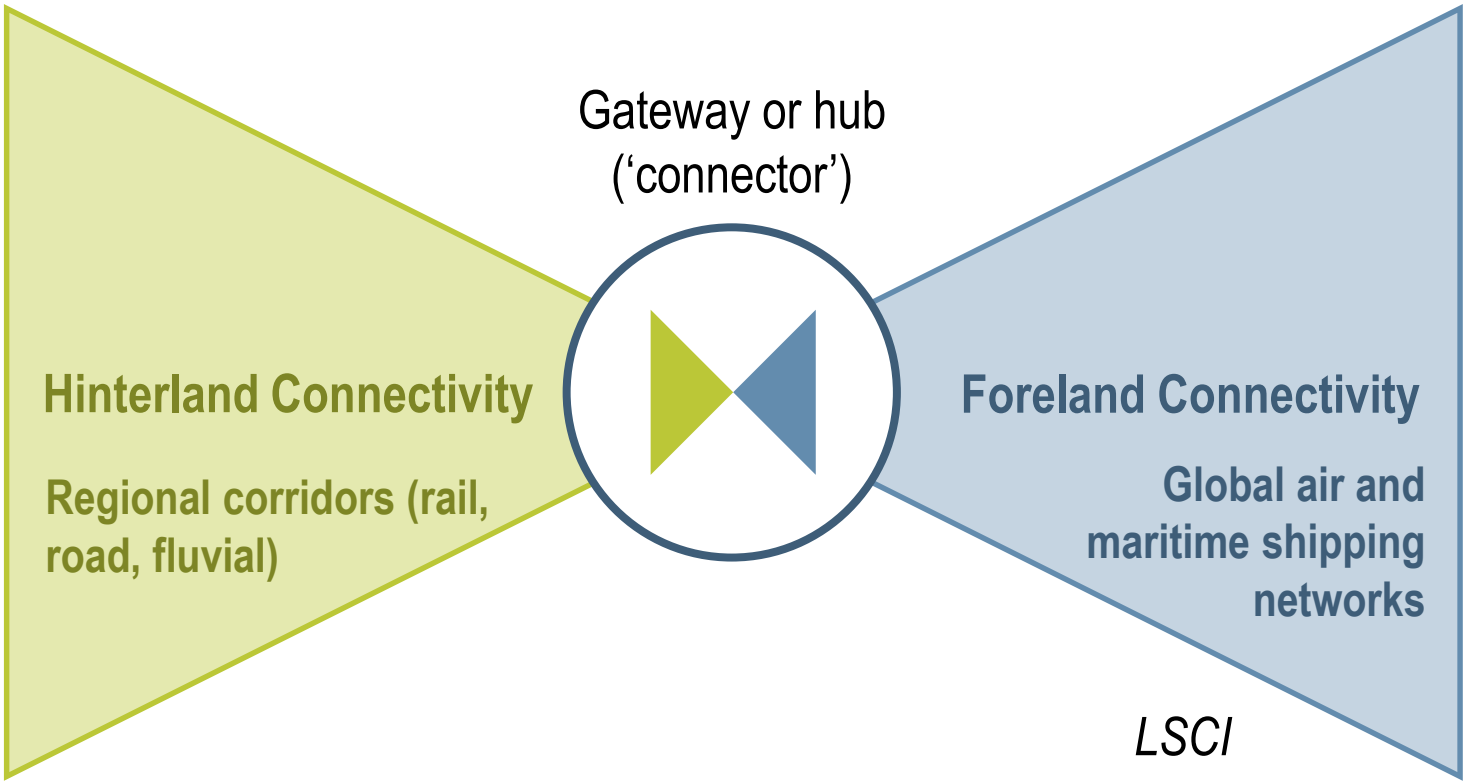




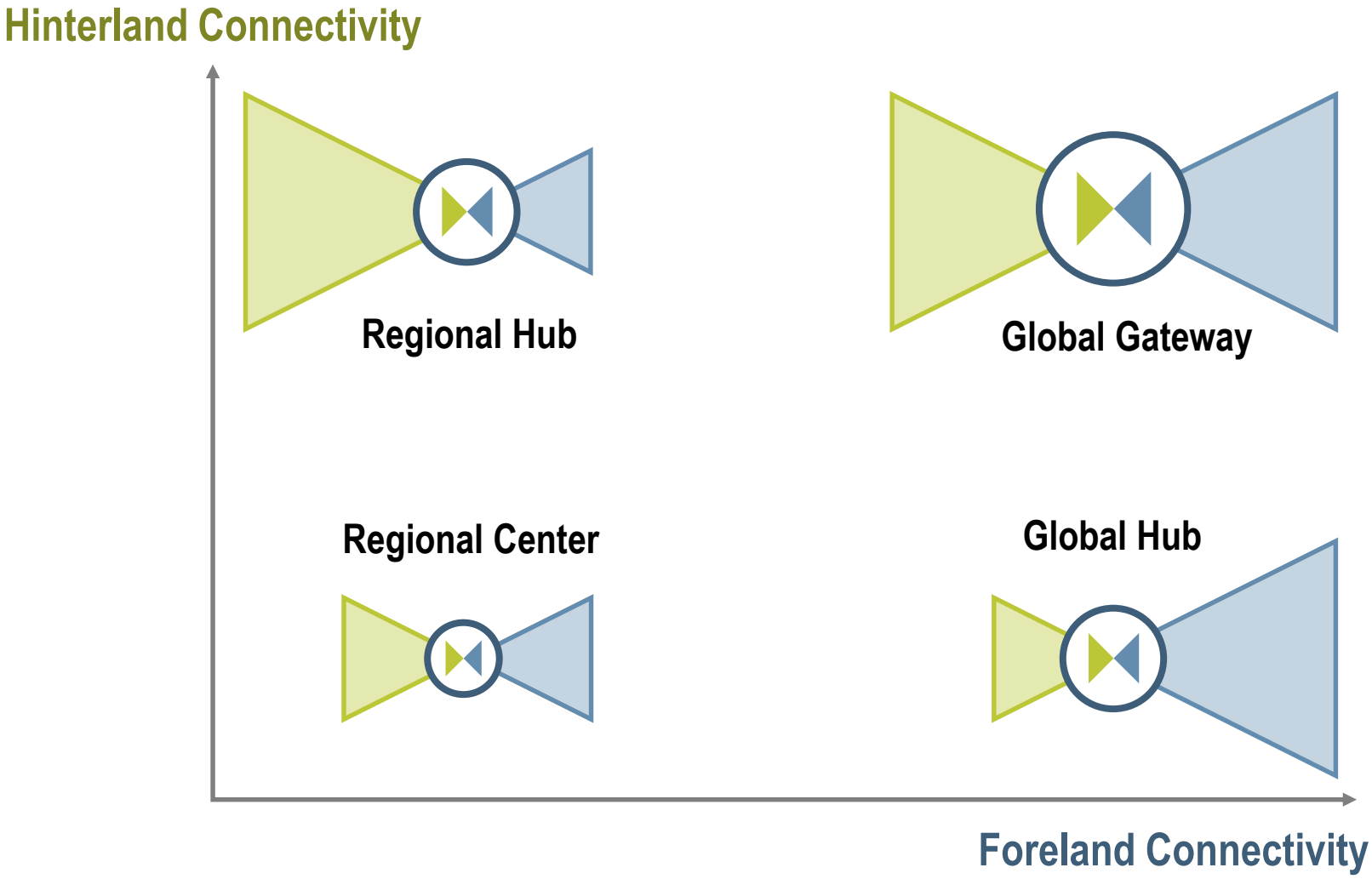


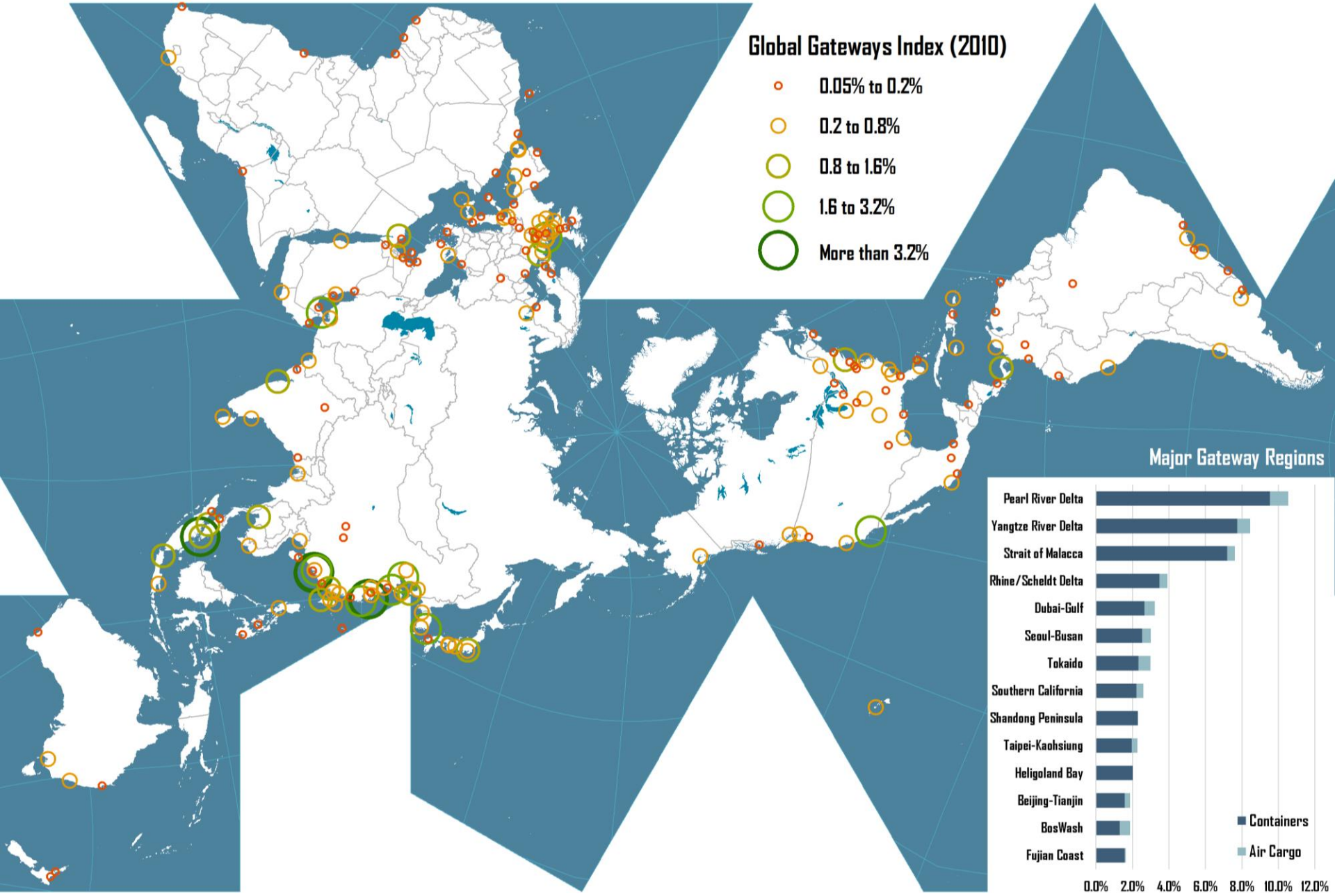
2. Developing a Global Connectivity Index

The Components of Connectivity: The ‘Bowtie Approach’

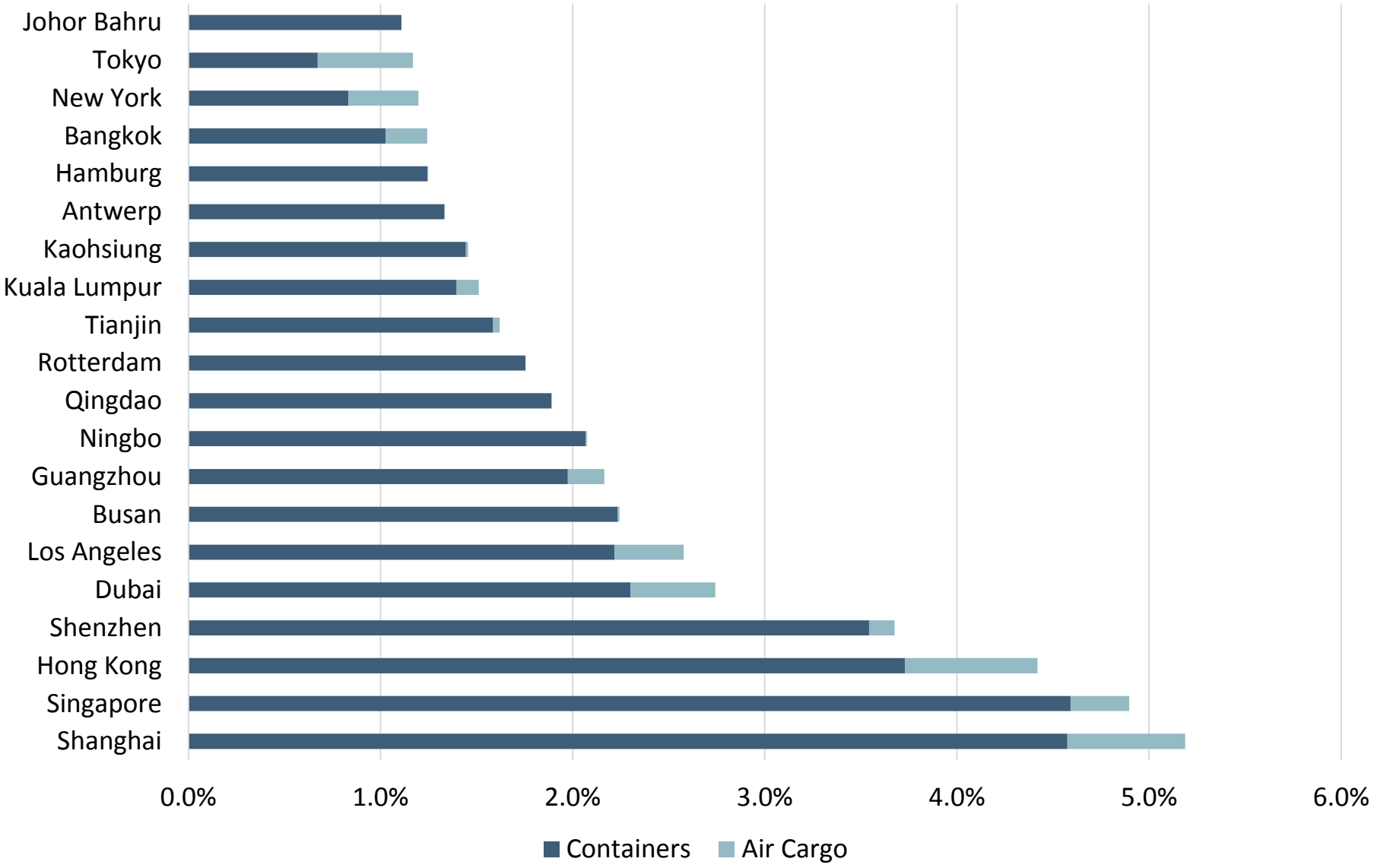


Functional Variations in Connectivity

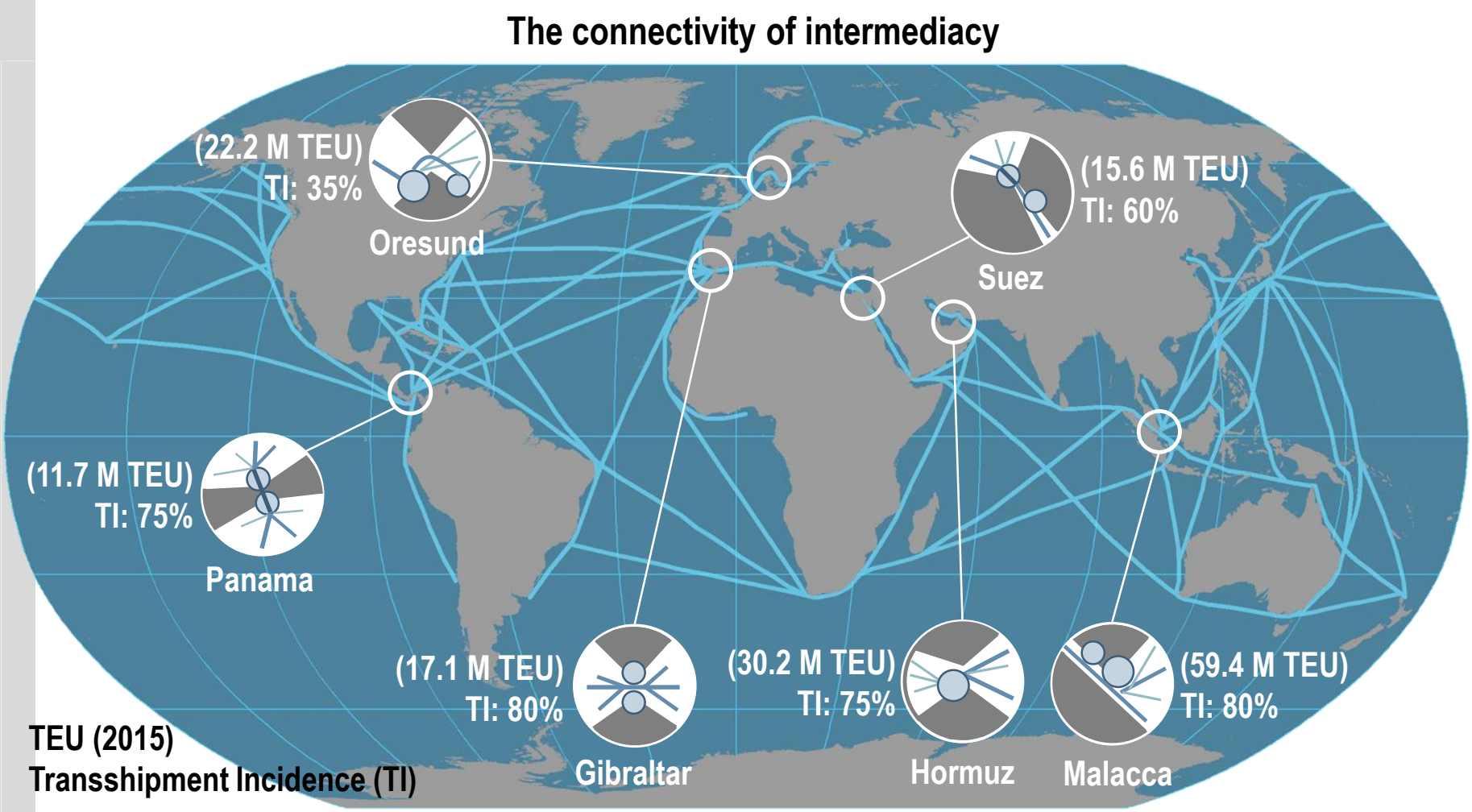



Global Gateways Index (2010)
0.05% to 0.2%
0.2 to 0.8%
0.8 to 1.6%
1.6 to 3.2%
More than 3.2%
Major Gateway Regions
Pearl River Delta
Yangtze River Delta
Strait of Malacca
Rhine/Scheldt Delta
Dubai-Gulf
Seoul-Busan
Tokaido
Southern California
Shandong Peninsula
Taipei-Kaohsiung
Heligoland Bay
Beijing-Tianjin
BosWash
Fujian Coast
Containers
Air Cargo
0.0% 2.0% 4.0% 6.0% 8.0% 10.0% 12.0%

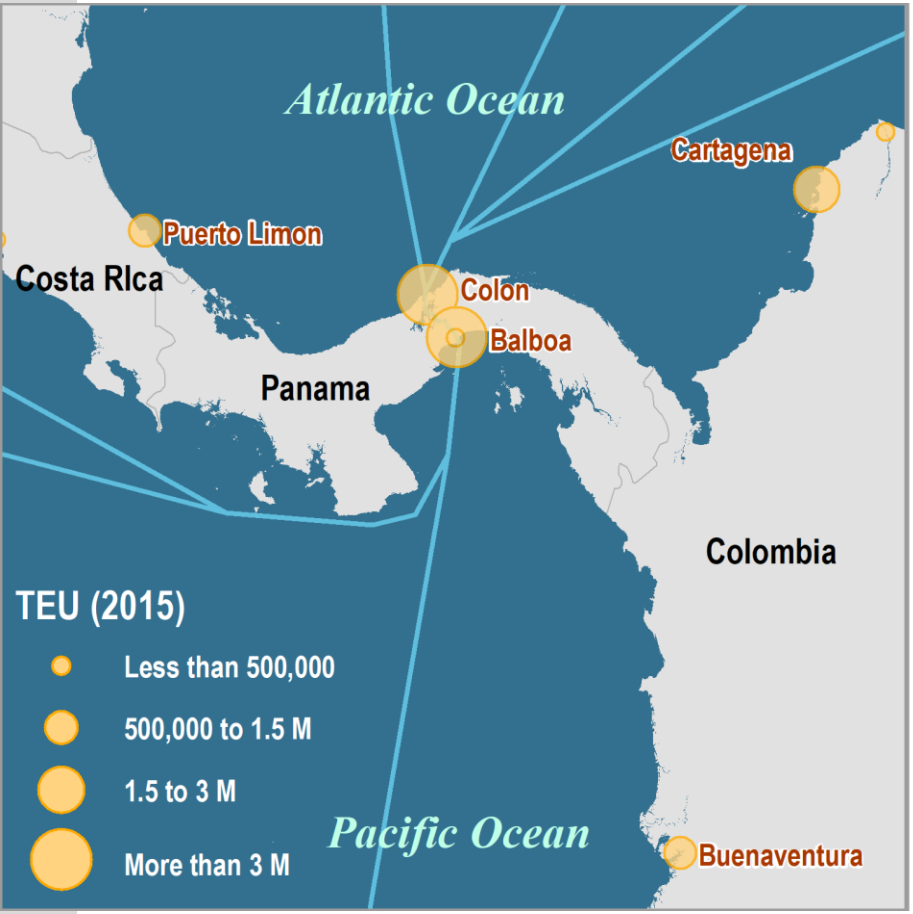
Top 25 Gateways, Global Gateways Index, 2010

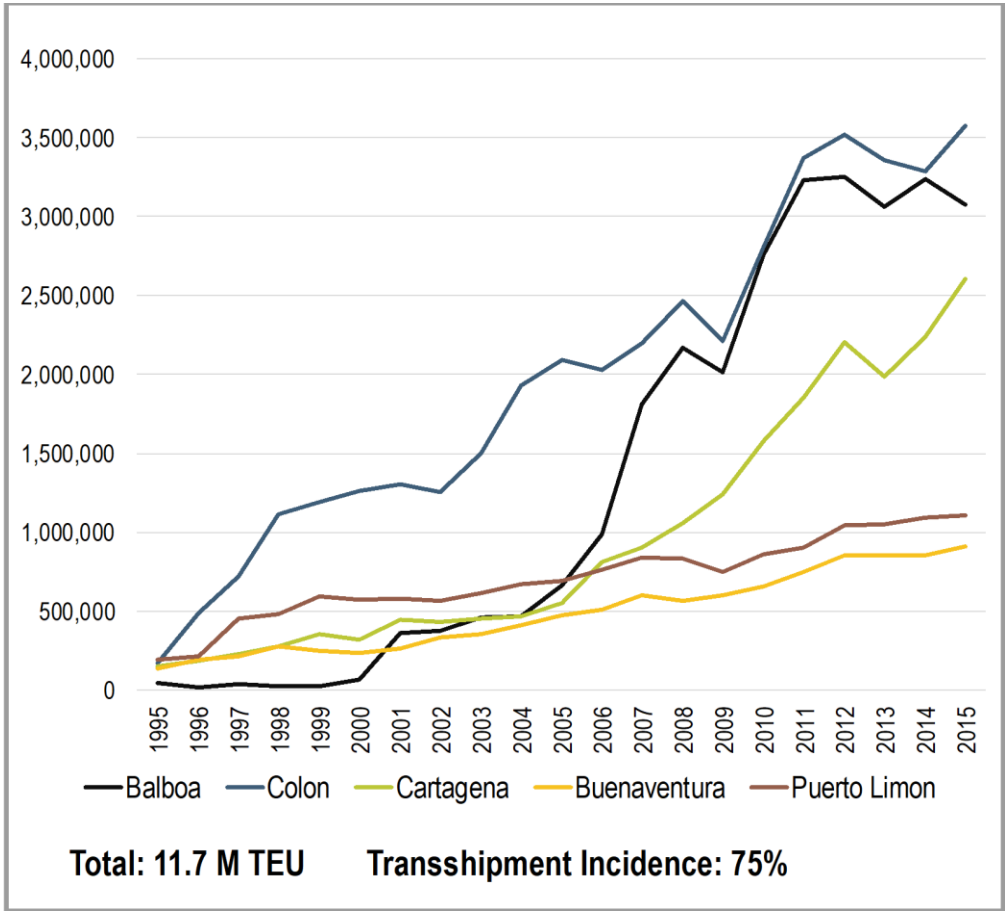


Connectivity Pattern of the World's Major Maritime Bottlenecks

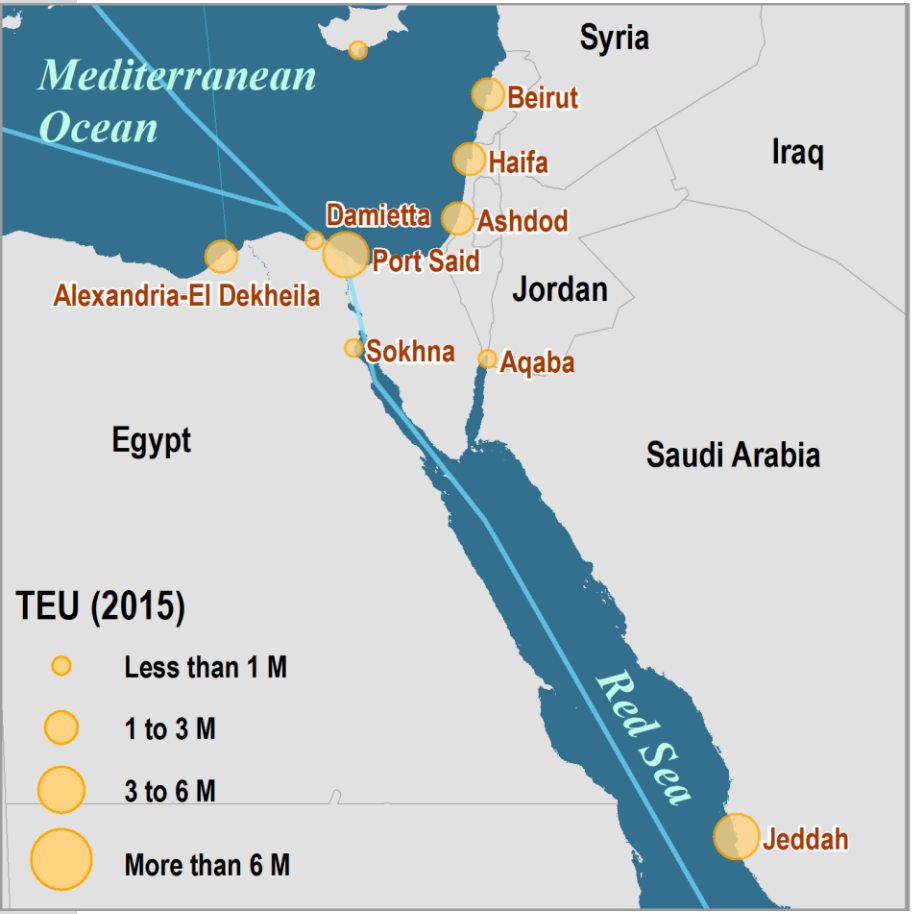


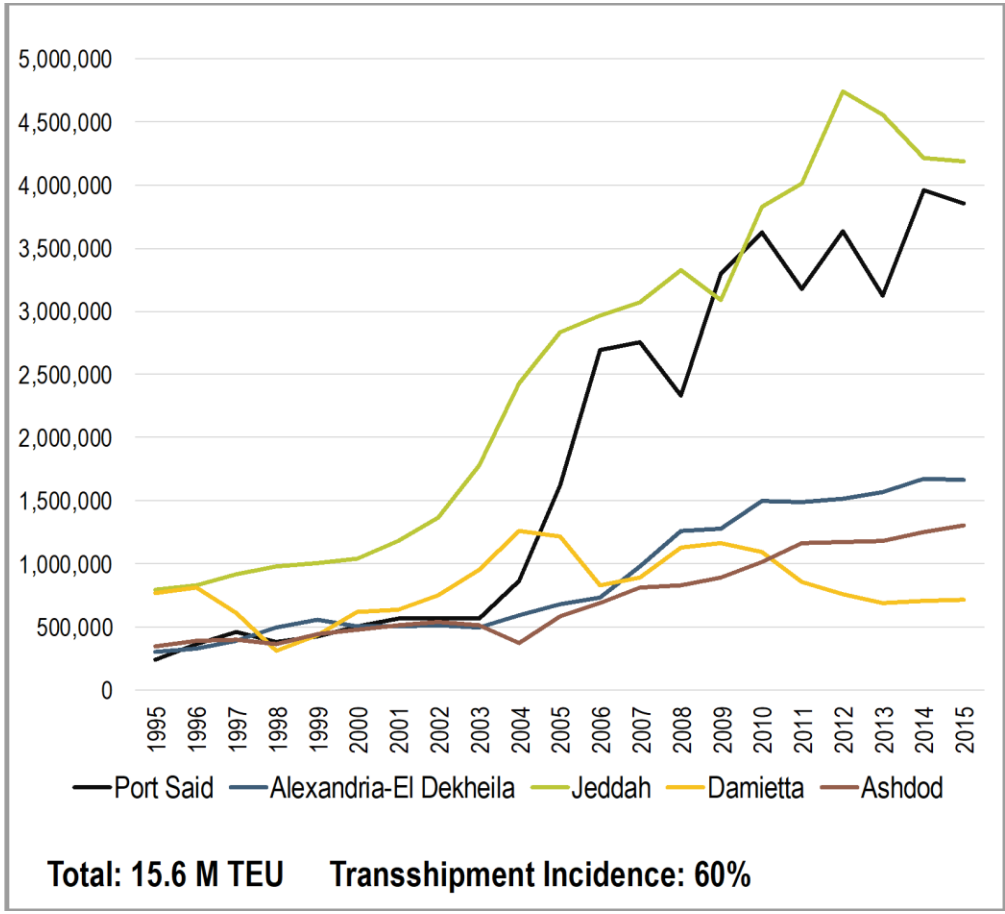
Container Traffic at Main Ports around the Panama Canal



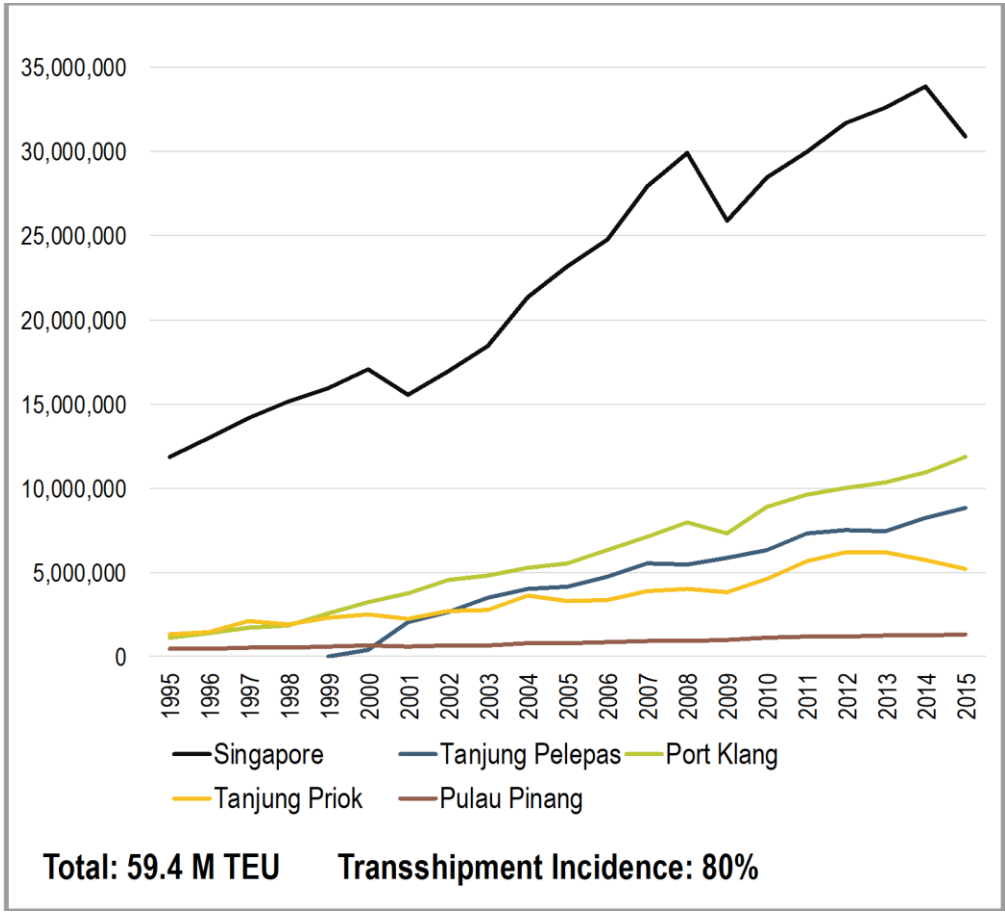


Container Traffic Handled at the Main Ports Around the Suez Canal

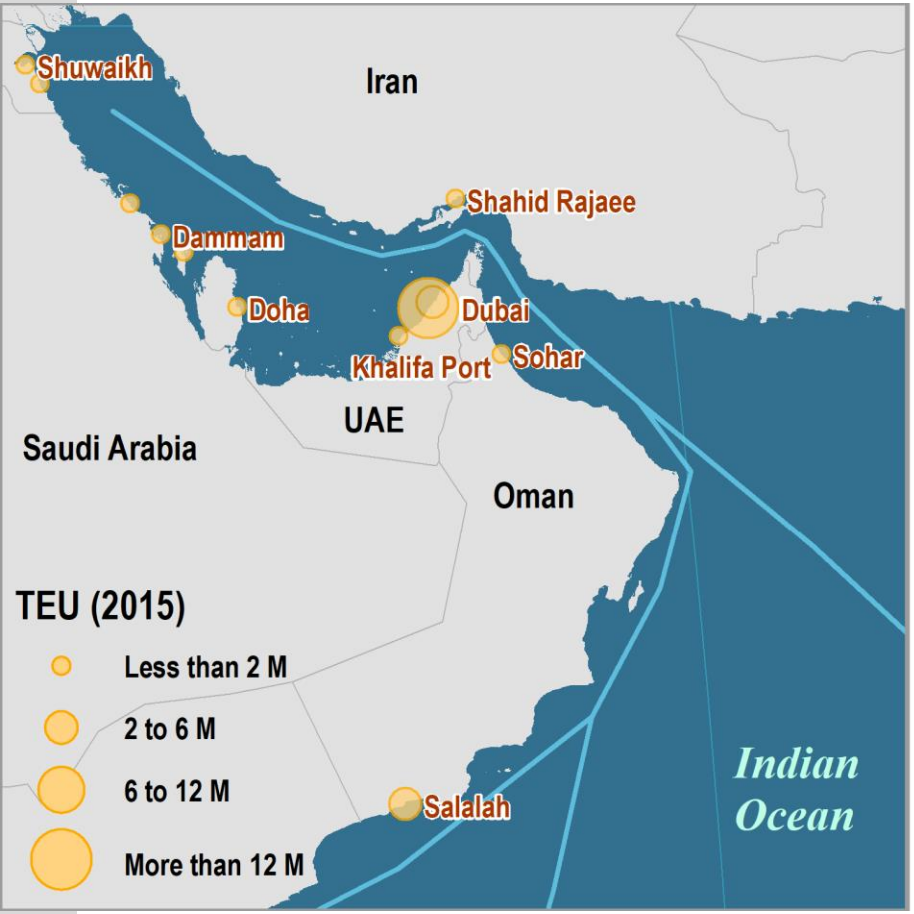


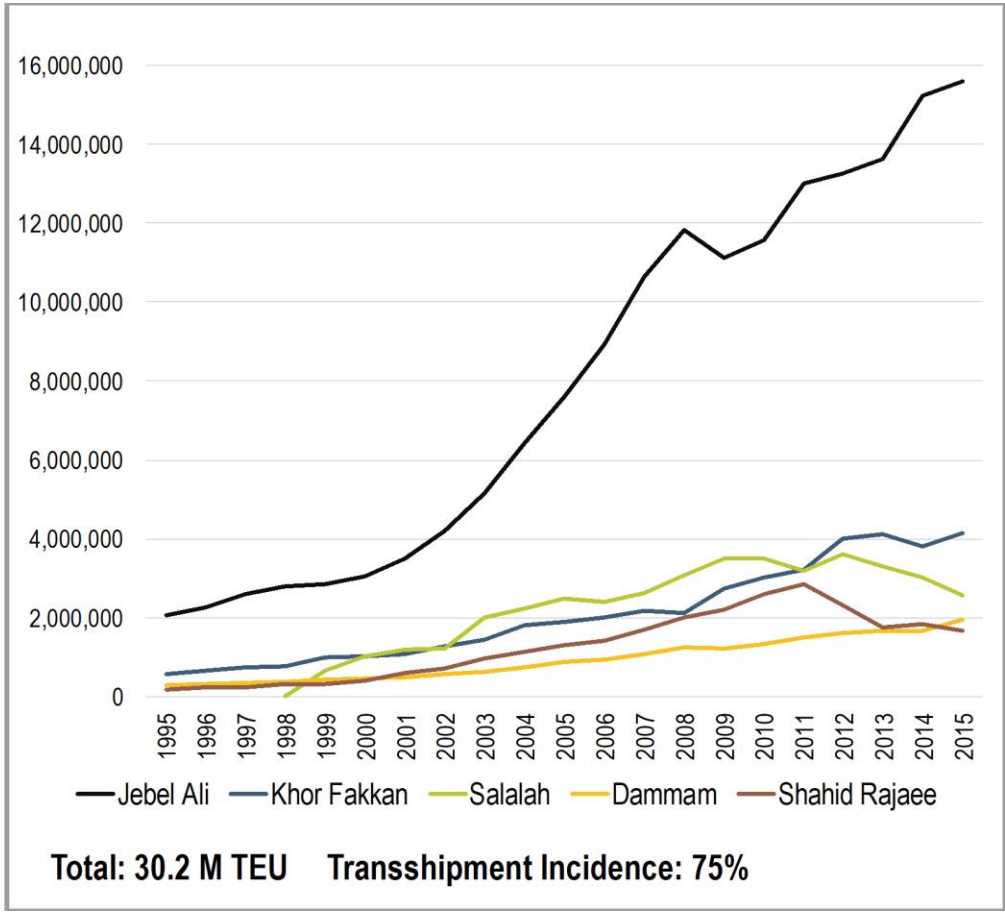


Container Traffic at Main Ports around the Strait of Malacca

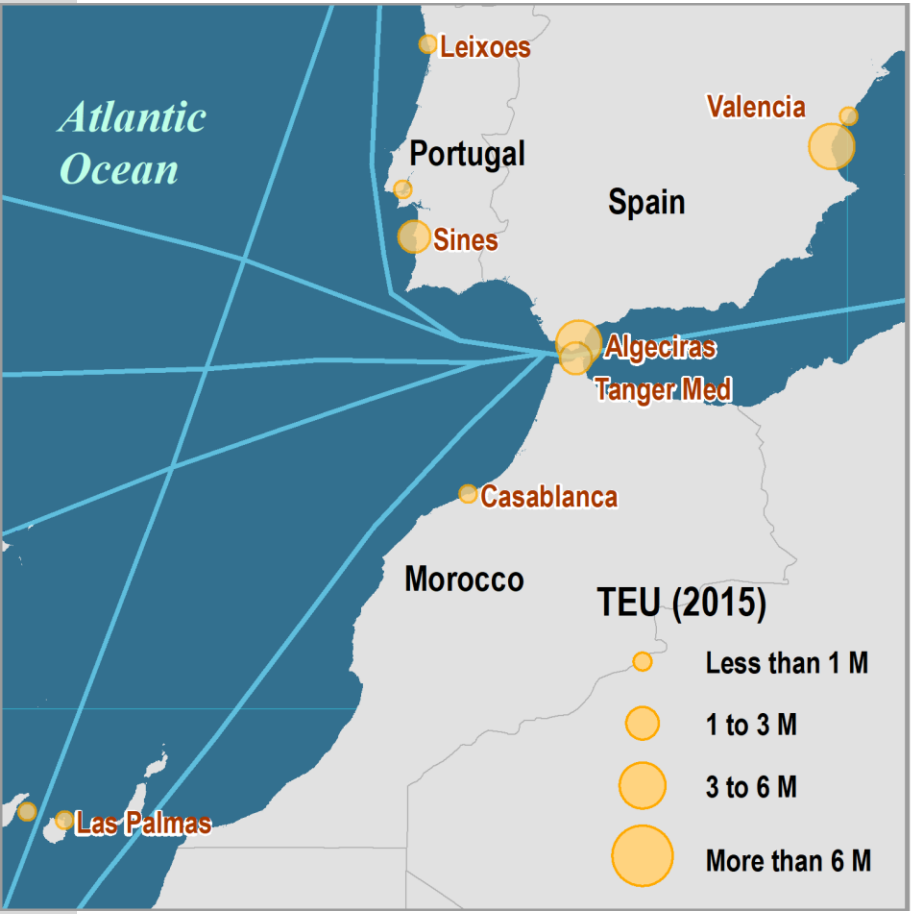


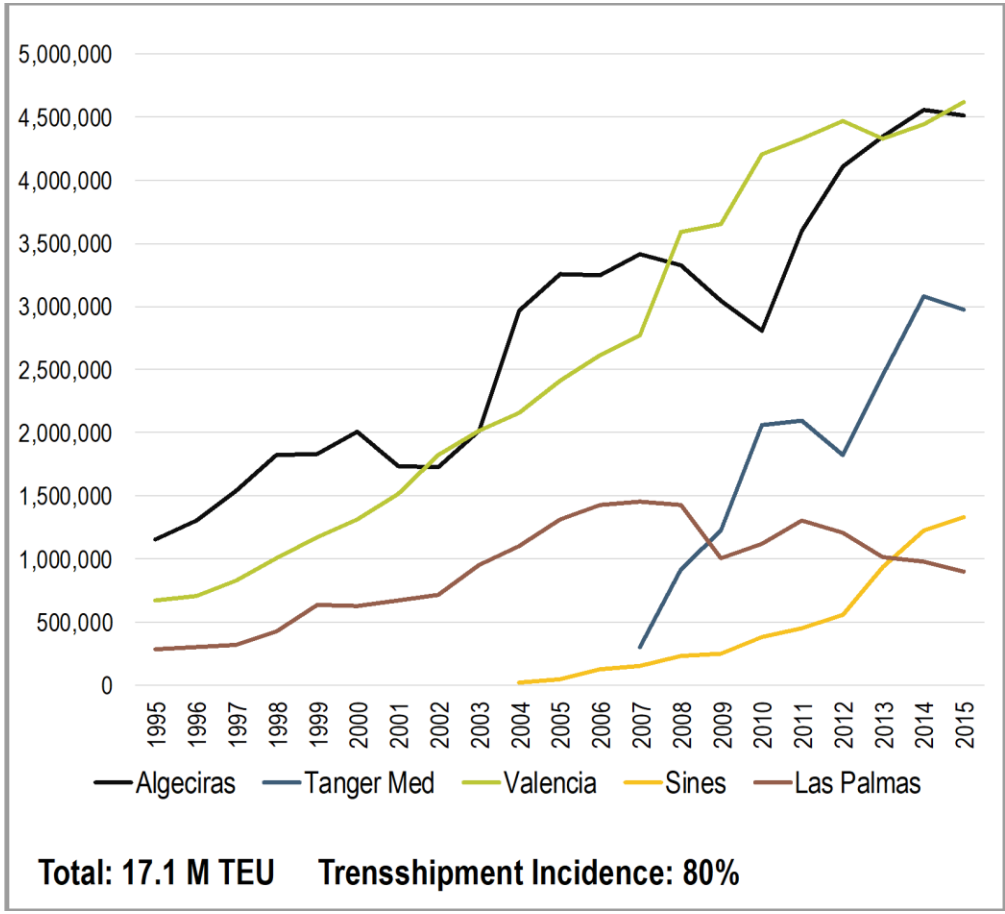
Container Traffic Handled at the Main Ports Around the Strait of Hormuz



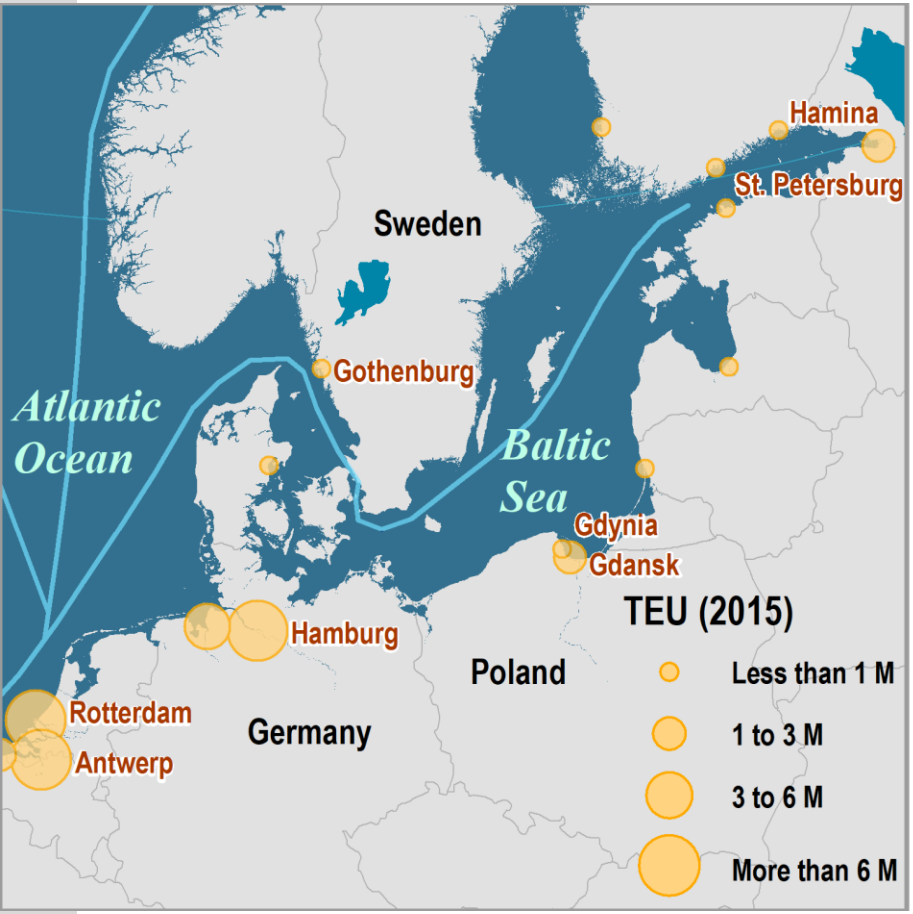


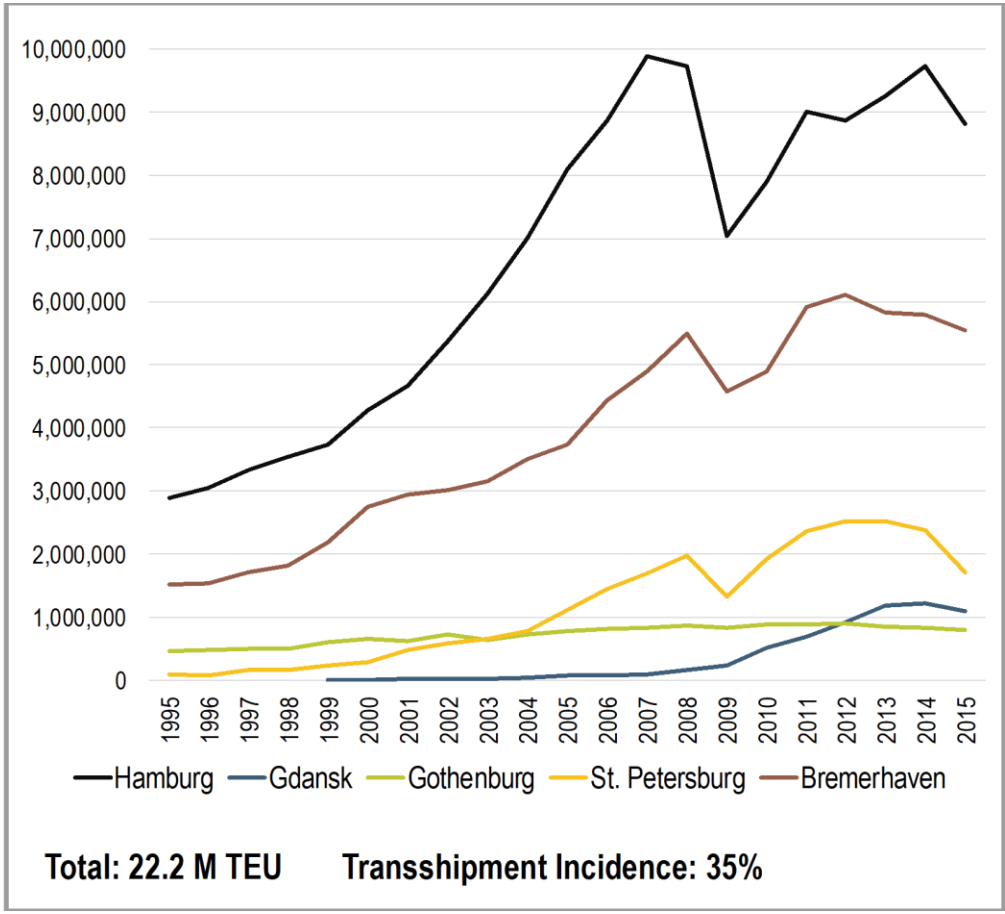
Container Traffic Handled at the Main Ports Around the Strait of Gibraltar





Container Traffic Handled at the Main Ports Around the Strait of Oresund





Conclusion: Big Data = More Inertia?